

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Presta, Leonard G.
Jardieu, Paula M.

(ii) TITLE OF INVENTION: Antibody Mutants

(iii) NUMBER OF SEQUENCES: 17

(iv) CORRESPONDENCE ADDRESS:

- (A) ADDRESSEE: Genentech, Inc.
- (B) STREET: 1 DNA Way
- (C) CITY: South San Francisco
- (D) STATE: California
- (E) COUNTRY: USA
- (F) ZIP: 94080

(v) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: WinPatin (Genentech)

(vi) CURRENT APPLICATION DATA:

- (A) APPLICATION NUMBER:
- (B) FILING DATE:
- (C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 60/031,945
(B) FILING DATE: 11/27/96

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Lee, Wendy M.
(B) REGISTRATION NUMBER: 40,378
(C) REFERENCE/DOCKET NUMBER: P1064R1

(ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 650/225-1994
(B) TELEFAX: 650/952-9881

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 108 amino acids
- (B) TYPE: Amino Acid
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Asp Val Gln Ile Thr Gln Ser Pro Ser Tyr Leu Ala Ala Ser Pro
1 5 10 15

55 Gly Glu Thr Ile Ser Ile Asn Cys Arg Ala Ser Lys Thr Ile Ser
20 25 30

Lys Tyr Leu Ala Trp Tyr Gln Glu Lys Pro Gly Lys Thr Asn Lys
 35 40 45

Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser
 50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65 70 75

5 Ser Ser Leu Glu Pro Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln
 80 85 90

10 His Asn Glu Tyr Pro Leu Thr Phe Gly Thr Gly Thr Lys Leu Glu
 95 100 105

Leu Lys Arg
 108

15 (2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 108 amino acids
 - (B) TYPE: Amino Acid
 - (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

25 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
 1 5 10 15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Lys Thr Ile Ser
 20 25 30

30 Lys Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 35 40 45

Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Val Pro Ser
 50 55 60

35 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65 70 75

40 Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln
 80 85 90

His Asn Glu Tyr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu
 95 100 105

45 Ile Lys Arg
 108

(2) INFORMATION FOR SEQ ID NO:3:

- 50 (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 108 amino acids
 - (B) TYPE: Amino Acid
 - (D) TOPOLOGY: Linear

55 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
 1 5 10 15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser
 20 25 30

Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 35 40 45

5 Leu Leu Ile Tyr Ala Ala Ser Ser Leu Glu Ser Gly Val Pro Ser
 50 55 60

10 Arg Phe Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65 70 75

15 Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln
 80 85 90

20 Tyr Asn Ser Leu Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu
 95 100 105

Ile Lys Arg
 108

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 121 amino acids
 25 (B) TYPE: Amino Acid
 (C) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

30 Glu Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Met Arg Pro Gly
 1 5 10 15

35 Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr
 20 25 30

40 Gly His Trp Met Asn Trp Val Arg Gln Arg Pro Gly Gln Gly Leu
 35 40 45

45 Glu Trp Ile Gly Met Ile His Pro Ser Asp Ser Glu Thr Arg Leu
 50 55 60

50 Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Val Asp Lys Ser
 65 70 75

55 Ser Ser Ser Ala Tyr Met Gln Leu Ser Ser Pro Thr Ser Glu Asp
 80 85 90

60 Ser Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
 95 100 105

65 Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser
 110 115 120

70 Ser
 121

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 121 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly
1				5					10				15	

Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Thr
				20					25				30	

Gly	His	Trp	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu
				35				40				45		

Glu	Trp	Val	Gly	Met	Ile	His	Pro	Ser	Asp	Ser	Glu	Thr	Arg	Tyr
				50				55				60		

Asn	Gln	Lys	Phe	Lys	Asp	Arg	Phe	Thr	Ile	Ser	Val	Asp	Lys	Ser
				65				70				75		

Lys	Asn	Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp
				80				85				90		

25	Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Tyr	Phe	Tyr	Gly	Thr
				95					100				105		

30	Thr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser
				110					115				120		

Ser	121														
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35 (2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 113 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

40 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly
1				5					10				15	

Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser
				20					25				30	

Ser	Tyr	Ala	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu
				35				40				45		

Glu	Trp	Val	Ser	Val	Ile	Ser	Gly	Asp	Gly	Gly	Ser	Thr	Tyr	Tyr
				50				55				60		

55	Ala	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser
				65				70				75			

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
 80 85 90

5 Thr Ala Val Tyr Tyr Cys Ala Arg Gly Phe Asp Tyr Trp Gly Gln
 95 100 105

Gly Thr Leu Val Thr Val Ser Ser
 110 113

10 (2) INFORMATION FOR SEQ ID NO:7:

15 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 184 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Lys Gly Asn Val Asp Leu Val Phe Leu Phe Asp Gly Ser Met Ser
 1 5 10 15

25 Leu Gln Pro Asp Glu Phe Gln Lys Ile Leu Asp Phe Met Lys Asp
 20 25 30

30 Val Met Lys Lys Leu Ser Asn Thr Ser Tyr Gln Phe Ala Ala Val
 35 40 45

35 Gln Phe Ser Thr Ser Tyr Lys Thr Glu Phe Asp Phe Ser Asp Tyr
 50 55 60

40 Val Lys Arg Lys Asp Pro Asp Ala Leu Leu Lys His Val Lys His
 65 70 75

45 Met Leu Leu Leu Thr Asn Thr Phe Gly Ala Ile Asn Tyr Val Ala
 80 85 90

50 Thr Glu Val Phe Arg Glu Glu Leu Gly Ala Arg Pro Asp Ala Thr
 95 100 105

55 Lys Val Leu Ile Ile Ile Thr Asp Gly Glu Ala Thr Asp Ser Gly
 110 115 120

60 Asn Ile Asp Ala Ala Lys Asp Ile Ile Arg Tyr Ile Ile Gly Ile
 125 130 135

65 Gly Lys His Phe Gln Thr Lys Glu Ser Gln Glu Thr Leu His Lys
 140 145 150

70 Phe Ala Ser Lys Pro Ala Ser Glu Phe Val Lys Ile Leu Asp Thr
 155 160 165

75 Phe Glu Lys Leu Lys Asp Leu Phe Thr Glu Leu Gln Lys Lys Ile
 170 175 180

80 Tyr Val Ile Glu
 184

85 (2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 184 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Lys	Gly	Asn	Val	Asp	Leu	Ile	Phe	Leu	Phe	Asp	Gly	Ser	Met	Ser
1					5				10					15

Leu	Gln	Pro	Asp	Glu	Phe	Gln	Ile	Leu	Asp	Phe	Met	Lys	Asp
				20				25				30	

Val	Met	Lys	Lys	Leu	Ser	Asn	Thr	Ser	Tyr	Gln	Phe	Ala	Ala	Val
				35				40				45		

Gln	Phe	Ser	Thr	Ser	Tyr	Lys	Thr	Glu	Phe	Asp	Phe	Ser	Asp	Tyr
				50				55				60		

Val	Lys	Gln	Lys	Asp	Pro	Asp	Ala	Leu	Leu	Glu	His	Val	Lys	His
				65				70				75		

Met	Leu	Leu	Leu	Thr	Asn	Thr	Phe	Gly	Ala	Ile	Asn	Tyr	Val	Ala
				80				85				90		

25	Thr	Glu	Val	Phe	Arg	Glu	Glu	Leu	Gly	Ala	Arg	Pro	Asp	Ala	Thr
				95				100				105			

30	Lys	Val	Leu	Ile	Ile	Ile	Thr	Asp	Gly	Glu	Ala	Thr	Asp	Ser	Gly
				110				115				120			

Asn	Ile	Asp	Ala	Ala	Lys	Asp	Ile	Ile	Arg	Tyr	Ile	Ile	Gly	Ile
				125				130				135		

35	Gly	Lys	His	Phe	Gln	Thr	Lys	Glu	Ser	Gln	Glu	Thr	Leu	His	Lys
				140				145				150			

Phe	Ala	Ser	Lys	Pro	Ala	Ser	Glu	Phe	Val	Lys	Ile	Leu	Asp	Thr
				155				160				165		

40	Phe	Glu	Lys	Leu	Lys	Asp	Leu	Phe	Thr	Glu	Leu	Gln	Lys	Lys	Ile
				170					175				180		

Tyr	Ala	Ile	Glu
			184

45 (2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 7 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

55	Lys	His	Val	Lys	His	Met	Leu
			1		5		7

(2) INFORMATION FOR SEQ ID NO:10:

5 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 11 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

10 Pro Lys Asn Ser Ser Met Ile Ser Asn Thr Pro
 1 5 10 11

(2) INFORMATION FOR SEQ ID NO:11:

15 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 7 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

His Gln Ser Leu Gly Thr Gln
 1 5 7

(2) INFORMATION FOR SEQ ID NO:12:

25 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

His Gln Asn Leu Ser Asp Gly Lys
 1 5 8

(2) INFORMATION FOR SEQ ID NO:13:

35 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

40 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

His Gln Asn Ile Ser Asp Gly Lys
 1 5 8

(2) INFORMATION FOR SEQ ID NO:14:

45 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 8 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

50 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Val Ile Ser Ser His Leu Gly Gln
 1 5 8

(2) INFORMATION FOR SEQ ID NO:15:

5 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

10 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

CACTTTGGAT ACCGCGTCCT GCAGGT 26

(2) INFORMATION FOR SEQ ID NO:16:

15 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

20 (iv) antisense

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CATCCTGCAG GTCTGCCTTC AGGTCA 26

(2) INFORMATION FOR SEQ ID NO:17:

30 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 121 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

35 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
1 5 10 15

40 Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr
 20 25 30

Gly His Trp Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 35 40 45

45 Glu Trp Val Gly Met Ile Ala Pro Ala Ser Ser Ser Thr Arg Tyr
 50 55 60

50 Asn Gln Lys Phe Lys Asp Arg Phe Thr Ile Ser Val Asp Lys Ser
 65 70 75

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
 80 85 90

55 Thr Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
 95 100 105

P1064R1C1

Express Mail No. EV 351932389 US

Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
110 115 120

Ser
121

5